

Iliopsoas abscess: Analysis and perspectives from an endemic region of Eastern Nepal

Yadav RP¹, Agrawal CS², Adhikary S³, Kumar M⁴, Regmi R⁵, Amatya R⁶, Gupta RK⁷

¹Senior Resident, ²Dean, Faculty of Medicine, ³Additional Professor, ⁴Associate Professor, ⁵Assistant Professor, ⁶Assistant Professor, ⁷Senior Resident, B.P. Koirala Institute of Health Science, Dharan, Nepal

Abstract

Objective: To evaluate the clinical profile and outcome in patients with iliopsoas abscess.

Methods: A descriptive study was carried out in B.P. Koirala Institute of Health Science, Dharan, Nepal from February 2005 to March 2006. The medical records of all thirty six patients admitted in surgery ward with diagnosis of iliopsoas abscess during the study period were analyzed.

Results: Thirty six patients were included the study. There were 22 (61.1%) males and 14 (38.9%) females with a mean age of 24.33 ± 19.19 years. Demographic distribution of the patients revealed the highest number 13 (36.1%) from Sunsari district, eastern part of the country. Right sided unilateral involvement was the most common presentation and only 2 cases had bilateral involvement. In none of our patients the dorsolumbar spine radiograph revealed any involvement of the bone. The most common complaints were pain in lower abdomen and lump in iliac fossa with flexion deformity at hip joint. All the patients underwent open surgical drainage and their outcomes were analyzed in term of cure, morbidity and mortality. *Staphylococcus aureus* was the most common organism 24 (61.5%) isolated. Twenty two (91.66%) of *Staphylococcus aureus* samples were sensitive to ciprofloxacin. There was one mortality in the group who died of septicemia secondary to necrotizing fasciitis. Six patients had wound infection, which were cured by regular dressing.

Conclusion: On the basis of our experience and review of available relevant literature, we can conclude that a high index of suspicion and awareness of the varying clinical picture are required to diagnose this condition properly. Ultrasonography should still be the preferred imaging modality as it is cheap, safe, cost effective and readily available. Ciprofloxacin should be used as a first line drug. Image guided aspiration may be practical in selected cases having little pus and traditional open drainage should be considered without hesitation.

Key words: Psoas abscess, ultrasound abdomen, bacteriology, operative intervention

Iliopsoas abscess is infrequently encountered in western countries; however it continues to be a major health problem in tropical countries like Nepal. In spite of a number of reports in the literature emanating from the developing countries,^{1, 2, 3} well defined management protocols are sparse. This study was conducted to evaluate the clinical profile and outcome in patients with Iliopsoas abscess admitted in BPKIHS. Relevant literatures were also reviewed and an attempt is made to formulate an optimal management strategy for our own institution.

Materials and methods

A descriptive study was carried out in B.P. Koirala Institute of Health Science, Dharan, Nepal from February 2005 to March 2006. The medical records of all thirty six patients admitted in surgery ward with diagnosis of Iliopsoas abscess during the study period were analyzed. Orthopaedic consultation was made in suspected cases to rule out septic arthritis of hip or osteomyelitis. Demographic profile like age sex socioeconomic condition and occupation were noted. Clinical parameters like mode of presentation, duration of symptoms, predisposing factors and history of

fever, pain, lump in iliac fossa and flexion deformity at hip joint were noted. Findings of investigation like Ultrasound abdomen, total leukocyte count (TLC), differential count (DLC), erythrocyte sedimentation rate (ESR), dorsolumbar spine radiograph (antero posterior and lateral views) were also analyzed. All the patients underwent operative drainage by established procedure.³ Briefly, the surgical procedure comprised of a lower abdominal extraperitoneal muscle splitting incision under general anaesthesia. The peritoneum was mobilized medially to expose the iliopsoas abscess and the fasciomuscular planes were incised to drain the abscess. The pus was sent for Gram's staining, bacterial culture and antibiotic sensitivity, AFB staining and culture for mycobacterium tuberculosis.

Correspondence

Chandra Shekhar Agrawal
Professor and Head,
Department of Surgery,
B.P. Koirala Institute of Health Science, Dharan, Nepal
E-mail: drcsagrwal@yahoo.com

All intervening loculi were broken to facilitate the free drainage. The abscess cavity was irrigated with normal saline to remove the debris. Finally a large tube drain (28-30 Fr) was inserted through a separate incision before wound closure. In the postoperative period all patients received intravenous ciprofloxacin for 3 to 5 days until culture reports were available when the antibiotics were changed according to the sensitivity pattern. Oral antibiotic was started on fifth day of operation and it was continued for two weeks. A skin traction bearing approximately 10% of the patient's body weight was applied on the affected lower limb to correct the flexion deformity for 5 to 7 days. Patients were discharged after ensuring them being afebrile, have a healthy wound and significant recovery of flexion deformity. All the patients were assessed at the time of discharge and at one month post operatively for fever, wound condition (gapping or infection), septicaemia, and residual abscess leading to re- exploration.

Statistical Analysis

All analyses were performed on observed cases in SPSS for Windows 11.5 Chicago, Illinois USA.

Results

Thirty six patients were included the study. There were 22 (61.1%) males and 14 (38.9%) females with a mean age of 24.33 ±19.19 years. Demographic distribution of the patients revealed

the highest number 13 (36.1%) from Sunsari district, eastern part of the country. Maximum cases 23 (63.9%) were found to flock around the monsoon months of June to October. One patient had type 2 Diabetes mellitus while 3 had polymyositis. The clinical characteristic is shown in table 1. Right sided unilateral involvement was the most common presentation and only 2 cases had bilateral involvement. Haematological study revealed neutrophilic leucocytosis in all patients. In none of our patients the dorsolumbar spine radiograph revealed any involvement of the bone. All the patients underwent open drainage as described in methodology. The volume of pus drained ranged from 50ml to 350ml. Bacteriological results are shown in Table 2. *Staphylococcus aureus* was the most common organism 24 (61.5%) isolated. Other common organism isolate were *Escherichia coli*, *Streptococcus pyogen*, *Acinetobacterspecies*, *Enterococcus*, *Klebsiella oxytoca* and *Pseudomonas auriginosa*. Twenty two (91.66%) of Staphylococcus aureus isolates were sensitive to ciprofloxacin. Aerobic cultures were sterile in 5 (12.8%) patients. There was one mortality in the group who died of septicaemia secondary to necrotizing fasciitis. Sterile pus was found in the patients who had received antibiotic prior to operation and it did not showed AFB in culture subsequently. Six patients had wound infection, which were cured by regular dressing.

Table 1: clinical and radiological characteristic of the patients

S/N	Clinical feature	n (%)
1	Pain in lower abdomen	36(100)
2	Iliac fossa lump	35(97.22)
3	Fixed flexion deformity	35(97.22)
4	Fever	20(55.55)
5	Unilateral	34(94.44)
6	Right side	23(63.9)
7	Left side	11(30.6)
8	Bilateral	2(5.6)

Table 2: Bacteriological isolated from iliopsoas abscess

Bacterial organism	Frequency	Percent	Cumulative Percent
<i>Acinetobacter</i>	1	2.6	2.6
<i>Contaminant</i>	1	2.6	5.1
<i>Escherichia coli</i>	4	10.3	15.4
<i>Enterococcus</i>	1	2.6	17.9
<i>Klebsiella oxytoca</i>	1	2.6	20.5
<i>Pseudomonas auriginosa</i>	1	2.6	23.1
<i>Staphylococcus aureus</i>	24	61.5	84.6
<i>Sterile</i>	5	12.8	97.4
<i>Streptococcus pyogen</i>	1	2.6	100.0
Total	39	100.0	

Discussion

Though iliopsoas abscess is a rare condition in western countries, it is a common condition in developing country like Nepal^{2,3}. Iliopsoas abscess is common in HIV infected patients, so it is possible that the incidence of iliopsoas abscess will increase with HIV pandemic.^{4,5} However, in our study none of the patients were investigated for HIV.

With the advent of antitubercular chemotherapy, there has been decrease in the incidence of tubercular psoas abscess.⁶ In 1992, the occurrence of psoas abscess was 12 cases per year world wide.⁷ But these days a large number of cases are being reported predominantly from the developing countries. This increase could be attributed to an improved diagnosis with widespread use of computed tomography.⁸ Utpal De et al, reported 70 patients with psoas abscess over a 5 year period, of which 10 cases were proved to be of tubercular origin.¹ In our study there were 36 cases of psoas abscess over a 13 months period. All were pyogenic in origin. None had tubercular aetiology in our series. This clearly indicates increase in frequency of the disease. The large volume of psoas abscess seen in our study is related to the tertiary referral status of our centre. Interestingly, and in accordance to other reports,¹ as much as 23 (63.9%) cases occurred during the monsoon period. The explanation to this climatic correlation still remains elusive. A battery of diagnostic investigations such as haematological profile, abdominal radiograph, intravenous pyelography, gallium scan and computed tomography allow more rapid diagnosis of psoas abscess,⁹ however these modern facilities are not available in most developing countries. USG abdomen was a quick, safe, economical and a sensitive imaging modality. *Staphylococcus aureus* was the most common organism 24 (61.5%) in our study which is consistent with the bacteriological profile in other series.^{1, 2, 3} Ciprofloxacin was the most effective

antibiotic as 22 (91.6%) of *Staphylococcus aureus* were sensitive. Based on these findings of antibiotic sensitivity we can recommend ciprofloxacin as a first line therapy for psoas abscess in our part of world. Different methods have been used to treat psoas abscess such as conservative management with antibiotic alone,² USG/CT guided drainage with appropriate antibiotic and extra peritoneal surgical drainage.^{10, 11} Although USG/CT guided drainage of psoas abscess has been reported to be a preferred line of treatment due to its minimal invasiveness, the results are confounded with limited number of patients and high rates of inadequate drainage/recurrences.^{10, 12} Our preference for open drainage of psoas abscess is a result of confidence in the safety and success of this approach in its management.

Conclusion

Iliopsoas abscess is a common condition in developing country like Nepal and it continues to be a major health problem. *Staphylococcus aureus* is the most common organism and Ciprofloxacin is the most effective antibiotic. USG and CT scan are useful in diagnosis. Treatment consists of adequate drainage and appropriate antibiotic coverage. On the basis of our experience and review of available relevant literature, we can conclude that a high index of suspicion and awareness of the varying clinical picture are required to diagnose this condition properly. Ultrasonography should still be the preferred imaging modality as it is cheap, safe, cost effective and readily available. Ciprofloxacin should be used as a first line drug. Image guided aspiration may be practical in selected cases having little pus and traditional open drainage should be considered without hesitation.

Acknowledgement

We appreciate Dr Sudha Agrawal, Dr Akshay Pratap Singh Chauhan and Mr. Binod Samsohang for preparing this paper.

References

1. De U, Pal D. Seventy cases of nontubercular psaoas abscess at a rural referral centre in South Bengal. *Trop Doct* 2006; 36:53-54.
2. Shah RK, Singh NP, Shah NP. Acute pyogenic iliopsoas abscess in children in Nepal. *Trop Doct* 2004; 34:242-243.
3. Afaq A, Jain BK, Dragan P, Bhattacharya SK, Rauniyar RR, Kukreti R. Surgical drainage of primary iliopsoas abscess-safe and cost effective treatment. *Trop Doct* 2002; 32:133-135.
4. Santaella RO, Fishman EK, Lipsett PA. Primary versus secondary psoas abscess. Presentation microbiology and treatment. *Arch Surg* 1995; 130:1309-1313.
5. Walsh T, Reilly J, Hanley E et al. Changing etiology of iliopsoas abscess. *Am J Surg* 1992; 163: 413- 416.
6. Ricci MA, Rose FB, Meyer KK. Pyogenic psoas abscess: Worldwide variation in etiology. *Word J Surgery* 1986; 10:834-843.
7. Taiwo B. Psoas abscess: A primer for the internist: Case report. *South Med J* 2001; 94:78-80.
8. Gruenwald I, Abrahamson J, Cohen O. Psoas abscess: case report and review of the literature. *J Urol* 1992; 147:1624-1626.
9. William P. Non-tubercular psoas abscess. *Clin Radiol* 1986; 37:253-256.
10. Muller PR, Ferrucci JT Jr, Wittenbrg J, Simeone JF, Butch RJ. Iliopsoas abscess: treatment by CT-guided percutaneous catheter drainage. *Am J Roentgenol* 1984; 142: 359- 362.
11. Golli M, Hoeffel C, Belguith M, et al. Primary psoas abscess in children: 6 cases. *Arch Pediatr* 1995; 2: 143-146.
12. Lin MF, Lau YJ, Hu BS, Shi ZY, Lin YH. Pyogenic psoas abscess: analysis of 27 cases. *J Microbiol Infect* 1999; 32:261-268.